



Univerza v Mariboru

Fakulteta za naravoslovje
in matematiko

UČNI NAČRT PREDMETA / COURSE SYLLABUS

Predmet:	Raziskovalni seminar 6
Course title:	Research Seminar 6

Študijski program in stopnja Study programme and level	Študijska smer Study field	Letnik Academic year	Semester Semester
Matematika, 3. stopnja		4.	7.
Mathematics, 3 rd cycle		4 th	7 th

Vrsta predmeta / Course type

Univerzitetna koda predmeta / University course code:

Predavanja Lectures	Seminar Seminar	Vaje Tutorial	Klinične vaje work	Druge oblike študija	Samost. delo Individ. work	ECTS
	15				75	3

Nosilec predmeta / Lecturer:

Jeziki / Languages: Predavanja / Lectures:
Vaje / Tutorial:

Pogoji za vključitev v delo oz. za opravljanje študijskih obveznosti: Prerequisites:

Vsebina:

Študent usvoji zahtevnejše metode samostojnega raziskovalnega dela na svojem znanstvenem področju ter se nauči realizirati dobljene rezultate v praksi. Pridobi sposobnost prepoznati matematično vsebino konkretnega problema, izbrati ustrežno metodo za njegovo reševanje in razviti primeren matematični aparat, ki je zato potreben.

Content (Syllabus outline):

Student gets familiar with advanced methods of independent research work in his scientific area and learns how to apply the results of his research in practice. He/she must be able to recognize the mathematical contents of a concrete problem, to choose the appropriate method(s) for its solving and to develop the necessary mathematical apparatus for this purpose.

Temeljni literatura in viri / Readings:

- Literatura iz raziskovalnega področja.

Dodatna literatura / Additional Readings:

- Kandiller, L. Principles of mathematics in operations research, Berlin: Springer-Verlag 2007.
- Shubik, M. Game Theory in the Social Sciences, Massachusetts: MIT Press, 1985.
- Sethuraman, B. A. Rings, fields, and vector spaces, Berlin: Springer-Verlag, 1997.
- Kreps, D. M. Game Theory and Economic Modeling, Oxford: Oxford University Press, 1990.
- Oyvind Hjelle, O., Daehlen, M. Triangulations and applications, Mathematics and visualization, Berlin: Springer-Verlag, 2006.
- Zomorodian, A. J. Topology for computing, Cambridge: Cambridge University Press, 2009.
- Ferguson, T. S. Mathematical Statistics – A decision-Theoretic Approach, New York: Academic Press, 2014.
- Allgower, E. L., Georg, K. Numerical Continuation Methods, Berlin: Springer-Verlag, 2011.

Cilji in kompetence:

- pripraviti študente za bodoče raziskovalno in aplikativno delo – prenos znanstvenih spoznanj v prakso in razvoj matematičnih metod, potrebnih za rešitev konkretnega problema.
- študent se usposobi za individualno in skupinsko delo pri reševanju matematičnih problemov, pridobi sposobnost sodelovanja na obsežnejšem projektu in vodenja skupine raziskovalcev.

Objectives and competences:

- to prepare students for their future independent research and applicative work – the transfer of scientific knowledge to practice and the development of mathematical methods, necessary to solve a concrete problem
- students acquaintain the ability of individual and team work at solving mathematical problems and get able to participate in a larger project or rule a research team.

Predvideni študijski rezultati:**Znanje in razumevanje:**

- poznavanje splošnih in specifičnih metod za reševanje teoretičnih in praktičnih problemov
- formiranje specifičnega znanje ter njegovo apliciranje na konkretne probleme
- sposobnost oblikovati nove znanstvene koncepte ter metodološke pristope za reševanje različnih problemov

Intended learning outcomes:**Knowledge and understanding:**

- the knowledge of general and specific methods for solving theoretical and practical problems
- the development of special knowledge and its application to concrete examples
- the ability to formulate new scientific concepts and methodological approaches for solving various problems

Prenesljive/ključne spretnosti in drugi atributi:

- strokovno zapisovanje in izražanje matematičnih vsebin
- obvladanje reševanja strokovnih problemov
- suvereno predstavljanje ključnih spoznanj in spretnost argumentiranja

Transferable/Key Skills and other attributes:

- expressing mathematical contents in oral and written form
- ability to solve specific mathematical problems
- clear presentation of the results of research work and efficient argumentation

Metode poučevanja in učenja:

- konzultacije;
- priprava seminarja;
- samostojni študij.

Learning and teaching methods:

- consultations;
- seminar work;
- self-study.

Delež (v %) /

Načini ocenjevanja:

Weight (in %) **Assessment:**

Ustna predstavitev

100 %

Oral presentation

Reference nosilca / Lecturer's references:

Habilitirani nosilci predmetov v programu / Teachers listed in the program